

### **AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A method of ground level compensation, comprising:

measuring a voltage of at least one signal with respect to a primary ground potential to provide a voltage measurement;

measuring, with respect to the primary ground potential, a voltage level associated with a secondary ground potential;

calculating a difference between the voltage level associated with the secondary ground potential and an expected value;

adjusting the ~~measured~~ voltage measurement of the at least one signal by an amount corresponding to the difference.

2. (Original) The method of claim 1, wherein the voltage level associated with the secondary ground potential is offset from the secondary ground potential by a fixed amount.

3. (Original) The method of claim 2, wherein the fixed amount of offset is between 0V and 5V.

4. (Original) The method of claim 2, wherein the expected value is equivalent to the fixed amount of offset.

5. (Original) The method of claim 1, wherein the at least one signal is an analog input signal to a control processor.

6. (Original) The method of claim 1, wherein the primary ground potential is a ground potential of a control processor.

7. (Original) The method of claim 1, wherein the secondary ground potential is a single point ground potential for a vehicle.

8. (Original) The method of claim 1, wherein the step of adjusting the measured voltage is performed periodically.

9. (Original) The method of claim 1, wherein the difference varies over time.

10. (Currently Amended) A ground compensating system, comprising:  
a control unit;  
a primary ground point for the control unit, the primary ground point having a first voltage potential;  
at least one data input supplying an input signal to the control unit;  
a reference input supplying a second voltage potential, associated with a secondary ground point, to the control unit; and  
a processor configured to:

measure, with respect to the first voltage potential, a first voltage magnitude associated with the input signal to provide a voltage measurement;

measure, with respect to the first voltage potential, a second voltage magnitude associated with the secondary ground point;

calculate a difference between the second voltage magnitude and an expected value; and

adjust the ~~measured first voltage~~ measurement of the first voltage magnitude by an amount corresponding to the difference.

11. (Original) The system of claim 10, wherein the control unit includes an electronic control unit for a vehicle, and the at least one data input receives data from at least one sensor on the vehicle.

12. (Original) The system of claim 10, wherein the secondary ground point is a single point ground for a vehicle.

13. (Original) The system of claim 10, wherein the second voltage potential includes a voltage level of the secondary ground point and an offset voltage.

14. (Original) The system of claim 13, wherein the offset voltage is between 0V and 5V.

15. (Original) The system of claim 13, wherein the expected value is equivalent to the offset voltage.

16. (Original) The system of claim 10, wherein the processor periodically measures at least one of the first voltage magnitude and the second voltage magnitude.

17. (Currently Amended) A ground compensating control system for a vehicle, comprising:

a control unit;

a control unit ground point having a first voltage potential;

at least one data input supplying an analog signal from a vehicle sensor to the control unit;

a reference input supplying a second voltage potential to the control unit, the second voltage potential being equivalent to a voltage of a single point ground of the vehicle plus a fixed offset voltage; and

a processor configured to:

measure, with respect to the first voltage potential, a first voltage magnitude associated with the analog signal to provide a voltage measurement;

measure, with respect to the first voltage potential, a second voltage magnitude associated with the second voltage potential;

calculate a difference between the second voltage magnitude and an expected value for the second voltage potential; and

adjust the ~~measured first voltage~~ measurement of the first voltage magnitude by an amount corresponding to the difference.

18. (Original) The system of claim 17, wherein the expected value is equivalent to the fixed offset voltage.